

Curriculum Vitae

Joost-Pieter Katoen

September 23, 2016

Personal details

Name : Prof. dr. ir. Joost-Pieter Katoen (PDEng)
Date and place of birth: October 6, 1964; Krimpen aan den IJssel
Nationality : Dutch
Sex : male
Status : married (3 children)
Postal address: Onderstebosch 1, 6228 SC Maastricht, The Netherlands
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Research

- Reactive, stochastic, and real-time systems
- Formal semantics
- Computer-aided verification, in particular model checking
- Concurrency theory

Education

April 1996	Ph.D, Computer Science	University of Twente
February 1990	Professional Doctorate in Engineering	Eindhoven University of Technology
December 1987	M.Sc., Computer Science (with distinction)	University of Twente

Employment

Since January 2009	Part-time Professor (0.2 fte) Computer Science	University of Twente The Netherlands
Since December 2004	Full (C4) Professor Computer Science	RWTH Aachen University Germany
March 1999 to December 2008	Associate Professor Computer Science (0.2 fte since December 2004)	University of Twente The Netherlands

January 1997 to February 1999	Postdoctoral Scientist Computer Architecture and Performance Evaluation Group	University of Erlangen -Nürnberg Germany
April 1992 to December 1996	Research Associate Tele-Informatics and Open Systems Group	University of Twente The Netherlands
January 1990 to March 1992	Research Scientist Information and Software Technology	Philips Research Labs The Netherlands

Honors

- Best paper awards at FACS 2014, IDEA 2016, and ETAPS 2016. Paper in Top-100 of most cited papers in Software Engineering¹.
- Member of the Academia Europaea, 2013.
- Distinguished Professor at RWTH Aachen University, 2013.
- Visiting Fellow Trinity College, University of Oxford (UK), June-Sep 2013.
- Theodore von Kármán Fellow, RWTH Aachen University, 2013.
- Visiting Professor University de Grande Region (UniGR)², March-May 2013.
- Member IFIP WG 2.2 on Formal Description of Programming Concepts, 2010.
- Teaching Award Computer Science Department, RWTH Aachen University, 2010.
- ACM Senior Member, 2009.
- Member IFIP WG 1.8 on Concurrency Theory, 2005.
- Offer Full (C4) Professorship on Software Engineering, University of Freiburg, 2004.
- EPSRC Visiting Professorship at the University of Birmingham (UK), 2000–2003.
- 2nd place Associate (C3) Professorship on Formal Methods, University of Bonn, 1998.
- Philips Early Career Development Award, 1988.

¹The 2003 IEEE TSE paper Model-Checking Algorithms for Continuous-Time Markov Chains by C. Baier, B. Haverkort, H. Hermanns, and J.-P. Katoen is ranked 74 in the top-100 of most cited papers in software engineering (and ranked 57 in the top-100 when considering number of citations per year). The top-100 was published in Information & Software Technology (2015) and is based on surveying 70,000 papers.

²The “University of the Greater Region is a cross-border association of universities funded by the EU INTERREG Programme. It involves the universities of Saarland, Liège (Belgium), Luxembourg, Lorraine (France), Kaiserslautern and Trier (Germany).

Doctoral students

1. Friedrich Gretz (Ph.D, RWTH Aachen, 2015):
Semantics and Loop-Invariant Synthesis for Probabilistic Programs.
Currently Researcher at Bosch Research & Development.
2. Falak Sher (Ph.D. RWTH Aachen, 2015):
Abstraction and Refinement of Probabilistic Automata using Modal Stochastic Games.
Currently Lecturer at the IT Universityat Lahore (Pakistan).
3. Jonathan Heinen (Ph.D. RWTH Aachen, 2015):
Verifying Java Programs with Graph Grammars.
4. Arpit Sharma (Ph.D. RWTH Aachen, 2015):
Reduction Techniques for Nondeterministic and Probabilistic Systems.
Currently Lecturer at Bhopal University (India).
5. Hongfei Fu (Ph.D. RWTH Aachen, 2014):
Verifying Probabilistic Systems: New Algorithms and Complexity Results.
Currently Researcher at ISCAS Beijing (China).
6. Mark Timmer (Ph.D. with distinction, University of Twente, 2013):
Efficient Modelling, Generation and Analysis of Markov Automata.
(jointly supervised with Jaco van de Pol and Mariëlle Stoelinga).
Recipient of the IPA PhD Dissertation Prize 2013 (IPA is the Dutch Institute for Programming research and Algorithmics) and of the Overijssel PhD Award 2014.³
Currently Mathematics Teacher at Salland College, Raalte (The Netherlands).
7. Haidi Yue (Ph.D. RWTH Aachen, 2013):
Analyzing Energy Consumption of Wireless Networks: A Model-based Approach.
8. Viet Yen Nguyen (Ph.D. RWTH Aachen, 2012):
Trustworthy Space Craft Design Using Formal Methods.
Currently Researcher at Fraunhofer IESE, Kaiserslautern (Germany).
9. Alexandru Mereacre (Ph.D. with distinction, RWTH Aachen, 2011):
Verification of Continuous-Space Stochastic Systems.
Currently postdoctoral researcher at University of Oxford (UK).
10. Marijn Jongerden (Ph.D. University of Twente, 2010):
Model-Based Energy Analysis of Battery Powered Systems.
(jointly supervised with Boudewijn Haverkort).
Recipient of the GI-MMB Dissertation Award 2011 (German Society of Comp. Science).
Currently postdoctoral researcher at the University of Twente (NL).
11. Daniel Klink (Ph.D. RWTH Aachen, 2010):
Three-Valued Abstraction of Stochastic Systems.

³Timmer and Han are the only CS PhD students in Twente that have been awarded the Overijssel PhD Award.

12. Martin Neuhäüßer (Ph.D. with distinction, RWTH Aachen and Univ. of Twente, 2010):
Model Checking Nondeterministic and Randomly Timed Systems.
Currently senior expert in Formal Verification at Siemens Nürnberg (Germany).
13. Tingting Han (Ph.D. with distinction, RWTH Aachen and University of Twente, 2009):
Diagnosis, Synthesis, and Analysis of Stochastic Systems.
Nominated for the GI Dissertation Award 2009 and recipient of the Overijssel PhD Award 2010. Currently Lecturer in Computer Science, Department of Computer Science and Information Systems, Birkbeck, University of London (UK)
14. Stefan Rieger (Ph.D. RWTH Aachen, 2009):
Verification of Pointer Programs.
Currently research scientist at TWT Stuttgart (Germany).
15. Carsten Kern (Ph.D with distinction, RWTH Aachen, 2009):
Learning Communicating and Nondeterministic Automata.
Currently Professor at the Regensburg University of Applied Sciences (Germany).
16. Ivan S. Zapreev (Ph.D, University of Twente, 2008):
Model Checking Markov Chains: Techniques and Tools.
Currently scientific programmer at CWI (The Netherlands).
17. Dino Distefano (Ph.D, University of Twente, 2003):
On Model Checking the Dynamics of Object-Based Software: A Foundational Approach.
(jointly supervised with Arend Rensink).
Dino was awarded the Royal Academy of Research Fellowship in 2006, the Roger Needham Award in 2012, and the CAV Award in 2016.
Currently Full Professor at Queen Mary University, London (UK) and affiliated with Facebook.
18. David N. Jansen (Ph.D., University of Twente, 2003):
Extensions of Statecharts: with Probability, Time, and Stochastic Timing.
(jointly supervised with Roel Wieringa).
Currently Assistant Professor at the Radboud University Nijmegen (The Netherlands).
19. Pedro R. D'Argenio (Ph.D., University of Twente, 1999):
Algebras and Automata for Timed and Stochastic Systems.
(jointly supervised with Ed Brinksma).
Currently Associate Professor at the Universidad Nacional de Córdoba (Argentina).

Current doctoral students: Harold Brintjes, Christian Dehnert, Dennis Guck (Twente), Christina Jansen, Sebastian Junges, Benjamin Kaminski, Tim Lange, Enno Ruijters (Twente), Matthias Volk, and Stephen (Hao) Wu.

Software tools

1. STORMDFT, a tool for the efficient state-space generation and quantitative analysis of dynamic fault trees (2016).

2. PROPHECY, a tool for parameter synthesis of Markov chains (since 2015)⁴.
3. PRINSYS, a tool for synthesizing loop-invariants for probabilistic programs (since 2013).
4. COMPASS, a tool-set for the verification, safety and dependability analysis, and performance analysis of AADL models (since 2009).
5. LIBALF, an open-source library for learning formal languages (since 2010).
6. SMYLE, learning communicating automata from MSCs (since 2007).
7. MRMC, a model checker for Markov reward chains and decision processes (since 2005).
8. MOTOR, a discrete-event simulator for a compositional randomly timed systems (2002-2008).
9. ETMCC, a model checker for continuous-time Markov chains (1999-2004).

Keynote talks

Conferences

1. *International Colloquium on Theoretical Aspects of Computing (ICTAC)*. Hanoi, Vietnam, 2017.
2. *Annual Meeting on Formal Methods in Computer Science (FAMC)*. Beijing, China, 2016.
3. IEEE Annual Conference on *Logic in Computer Science (LICS)*. New York City, USA, 2016.
4. Symposium on *Automata, Logic and Games*, Institute of Mathematical Sciences (IMS), Singapore, 2016.
5. The 4th Conference on *NETworked sYstems (NETYS)*. Marrakech, Maroc, 2016.
6. Conference on *Weighted Automata: Theory and Applications (WATA)*. Aalborg, Denmark, 2016.
7. *Software-Centric Systems Conference (SC²)*. Eindhoven, The Netherlands, 2016.
8. International Symposium on *Automated Technology for Verification and Analysis (ATVA)*. Shanghai, China, 2015.
9. International Conference on *Software Engineering and Formal Methods (SEFM)*. Grenoble, France, 2014.
10. 24th International Conference on *Concurrency Theory (CONCUR)*. Buenos Aires, Argentina, 2013.
11. 33rd International Conference on *Application and Theory of Petri Nets and Concurrency (ICATPN) and 12th International Conference on Application of Concurrency to System Design (ACSD)*. Hamburg, Germany, 2012.

⁴Runner up at the CAV 2015 Artifact Evaluation Competition.

12. International Symposium on *Interdisciplinary Modelling of Cyber-Physical Systems (IM-CPS)*. Manchester, UK, 2011.
13. 4th International Conference on *Fundamentals of Software Engineering (FSEN)*. Tehran, Iran, 2011.
14. 1st *Formal Methods Week (FMWeek)*. Eindhoven, The Netherlands, 2009. (joint invited speaker at soiree with E.A. Emerson).
15. 9th Int. Symposium on *Formal Methods for Components and Objects (FMCO)*. Eindhoven, 2009.
16. 2nd IFIP/IEEE Int. Symposium on *Theoretical Aspects of Software Engineering (TASE)*. Nanjing, China, 2008.
17. 5th Int. Conference on *Formal Methods and Analysis of Timed Systems (FORMATS)*. Salzburg, Austria, 2007.
18. 4th Int. Symposium on *Formal Methods for Components and Objects (FMCO)*. Amsterdam, 2005.

Invited Tutorial Lectures

1. Symposium on *Automata, Logic and Games*, Singapore, 2016.
2. International Conference on *Computer-Aided Verification (CAV)*. San Francisco, USA, 2015.
3. IEEE/ACM International Conference on *Automated Software Engineering (ASE)*. Essen, Germany, 2012. Joint tutorial with M. Bozanno and T. Noll.
4. Joint Conference on *Integrated Formal Methods (IFM) & ASM, B and Z Conference (ABZ)*. Pisa, Italy, 2012. Joint tutorial with M. Bozzano and V.Y. Nguyen.
5. 11th Conference on *Verification, Model Checking and Abstract Interpretation (VMCAI)*. Madrid, Spain, 2010.
6. 3rd IEEE Int. Conference on *Software Engineering and Formal Methods (SEFM)*. Koblenz, Germany, 2005. Invited tutorial together with H. Hermanns and D.N. Jansen.
7. IFIP Symposium on *Computer Performance Modeling, Measurement and Evaluation*. Rome, Italy, September 2002. Invited tutorial, jointly with B.R. Haverkort.
8. 12th Int. Conference on *Modelling Tools and Techniques for Computer and Communication System Performance Evaluation*. Invited tutorial, jointly with B.R. Haverkort. London, UK, April 2002.
9. 22nd Int. Conference on *Application and Theory of Petri Nets (ICATPN)*. Invited tutorial, jointly with J. Hillston. Newcastle upon Tyne, UK, June 2001.
10. 12th Int. Conference on *Concurrency Theory (CONCUR)*. Aalborg, Denmark, 2001. Invited tutorial, jointly with H. Hermanns.

11. Int. Multiconference on *Measurement, Modelling, and Evaluation of Computer-Communication Systems*, Aachen, Germany, September 2001. Invited tutorial.
12. 7th Joint Int. ACM Conference on *Measurement and Modeling of Computer Systems (ACM SIGMETRICS/IFIP Performance)*. Madison, USA, July 1998. Invited tutorial, jointly with H. Hermanns and U. Herzog.
13. Joint Int. Conference on *Formal Description Techniques (IX) and Protocol Specification, Verification and Testing (XVI) (FORTE/PSTV)*. Kaiserslautern, Germany, 1996. Invited tutorial, jointly with D. Latella.

International Workshops

1. Combined 23th International Workshop on Expressiveness in Concurrency (*EXPRESS 2016*) and 13th Workshop on Structural Operational Semantics (*SOS 2016*), Quebec City, 2016.
2. *Bellairs Workshop on Probabilistic Programming*, Barbados, 2016.
3. *19th Workshop on Methoden und Beschreibungssprachen zur Modellierung und Verifikation von Schaltungen und Systemen*, Freiburg, Germany, 2016.
4. *RSS Workshop on Abstraction and Synthesis of Correct-by-Construction Robotics Software*, Rome, Italy, 2015.
5. *20th Anniversary of Tools for the Construction and Analysis of Computer Systems (TACAS)*. Grenoble, France, 2014.
6. *Workshop on Probabilistic and Hybrid System Verification*, Beijing, China, 2013.
7. *3rd Grande Region Security and Reliability Day (GRSRD)*, Luxembourg, 2013.
8. 12th Int. Workshop on *Formal Methods for Industrial Critical Systems (FMICS)*. Trento, Italy, 2011.
9. 5th Int. Workshop on *Reachability Problems (RP)*. Genova, Italy, 2011.
10. ETAPS Workshop on *Hybrid Autonomous Systems (HAS)*. Sarrebruck, Germany, 2011.
11. Workshop on *Automata and Logic for Data Manipulating Programs*. LIAFA Paris, France, 2010.
12. FLOC Workshop on *Modeling, Languages and Analysis of Quantitative Systems (MLQA)*. Edinburgh, Scotland, 2010
13. *Formal Methods for Predictable Embedded Systems*. Aachen, Germany, 2010.
14. Workshop on *Interaction, Concurrency, and Experience (ICE)*. Amsterdam, The Netherlands, 2010.
15. *Formal Methods for Embedded Systems (FMES)*. Eindhoven, The Netherlands, 2009.
16. *Nordic Workshop on Programming Theory (NWPT)*. Copenhagen, Denmark, 2009.

17. IEEE CDC Workshop on *Stochastic Hybrid Systems*. Cancun, Mexico, 2008.
18. 5th Int. Workshop on *Automated Verification of Critical Systems*. Warwick, 2005.
19. IEEE CDC Workshop on *Stochastic Hybrid Systems: Theory and Applications*. Bahamas, 2004.
20. CONCUR Workshop on *Practical Applications of Stochastic Modeling (PASM)*. London, UK, 2004.
21. *Bellairs Workshop on Probabilities in Artificial Intelligence*. Barbados, 2004.
22. *10th Anniversary of Tools for the Construction and Analysis of Computer Systems (TACAS)*. Barcelona, Spain, 2004.
23. *Workshop on Process Algebra: Open Problems and Future Directions*. Bertinoro, Italy, 2003.
24. *Workshop on Infinite-state Systems and Verification of Quantitative Properties (ISVQP)*. Grenoble, France, 2003.
25. FLOC workshop on *Specification, Analysis and Validation for Emerging Technologies in Computational Logic (SAVE)*. Copenhagen, Denmark, 2002.
26. Workshop on *Methods for the Verification and Specification of Concurrent and Distributed Systems*. Pisa, Italy, 1996.

Summer Schools

1. NATO Summer School on *Engineering Dependable Software Systems*. Marktoberdorf, 2017.
2. 22th Summer School on *Computer Science (RIO)*. Rio Cuarto, Argentina, 2015.
3. Summer School on *Modeling and Verification of Parallel Processes (MOVEP)*. Nantes, France, 2014.
4. AVoCS-SPES Summer School on *Model-based Design and Analysis of Cyber-Physical Systems*, Enschede, The Netherlands, 2014.
5. 13th International School on *Formal Methods for the Design of Computer, Communication and Software Systems: Dynamical Systems*, Bertinoro, Italy, 2013.
6. ROCKS Autumn School on *RigorOUS dependability analysis using model ChecKIng techniques for Stochastic systems*, Vahrn, Italy, 2012.
7. NATO Summer School on *Engineering Dependable Software Systems*. Marktoberdorf, 2012.
8. 4th Summer School on *Verification Technology, Systems & Applications (VTSA)*. Liège, Belgium, 2011.
9. 18th Summer School on *Computer Science (RIO)*. Rio Cuarto, Argentina, 2011.

10. Summer School on *Model Checking*. Beijing, China, 2010.
11. Summer School on *Modeling and Verification of Parallel Processes (MOVEP)*. Aachen, Germany, 2010.
12. ARTIST-Design Spring School on *Quantitative Model Checking (QMC)*. Copenhagen, Denmark, 2010.
13. Summer School on *Global Computing Approach to Analysis of Systems (GLOBAN)*. Warsaw, Poland, 2008.
14. ARTIST2 Summer School on *MOdelling, TestIng, and Verification for Embedded Systems (MOTIVES)*. Trento, Italy, 2007.
15. ARTIST2 Summer School on *Component Modelling, Testing & Verification and Static Analysis for Embedded Systems*. Nässlingen, Sweden, 2005.
16. *4th International Summer School on Formal Methods: Real-Time Systems (SFM)*. Bertinoro, Italy, 2004.
17. EEF-Summer School on *Formal Methods and Performance Analysis (FMPA)*. Berg en Dal, The Netherlands, 2000.

Distinguished Speaker Series

1. *Festschrift Symposium in Honor of 60th Birthday of Ernst-Rüdiger Olderog*. Oldenburg, Germany, 2015.
2. *Belgian Seminar on Computer Aided Verification*. Brussels, Belgium, 2015.
3. Seminar on the *Opening of the FUNDP Research Centre Fundamentals of Computer Science (FOCUS)*. Namur, Belgium, 2012.
4. Workshop on the *15th Anniversary of LSV and Celebration of the CNRS Silver Medal awarded to Jean Goubault-Larrecq*. ENS Cachan, France, 2012.
5. Seminar on the *Opening of the VKR Research Centre of Excellence MT-LAB*. Lyngby University, Denmark, 2009.
6. *German Verification Day (GVD)*. Bonn, Germany, 2006.
7. *Workshop in Honor of the Honorary Doctorate of Gerard Holzmann*. University of Twente, 2006.
8. *Inaugural Lecture*, RWTH Aachen University, December 2005.
9. *Dagstuhl Seminar on Probabilistic Methods in Verification and Planning*. Schloß Dagstuhl, Germany, 2003.
10. *Belgian Seminar on Computer Aided Verification*. Brussels, Belgium, 2003.

Computer Science Colloquia at, amongst others: National University Singapore, Chennai Mathematical Institute (India), Jiaotong University (Shanghai, China), Microsoft Research (Cambridge, UK), Queen Mary University (London, UK), NII Shonan Research Centre (Zushi, Japan), TATA Institute for Fundamental Research (Mumbai, India), Chinese Academy of Sciences (Beijing, China), Tsinghua University (Beijing, China), Microsoft Research (Trento, Italy), Saarland University, University of Luxembourg, University of Magdeburg, University of Oldenburg, University of Stuttgart, University of Bremen, ESA Research Center, IRISA Rennes, Aalborg University, Danish Technical University Lyngby, ENS Cachan, Fondazione Bruno Kessler (Trento, Italy), University of Oxford, LFCS Edinburgh, Philips Research Labs, University of Freiburg, University of Münster, IBM Watson Research Laboratories, SUNY at Stony Brook, NASA Langley Research Centre, Caltech, University of California at Santa Cruz, University of Berkeley, University of Illinois at Urbana-Champaign, CWI Amsterdam, Shell Research Laboratories.

University activities

Lecturing

Ph.D. courses: Performance Analysis by Model Checking (IMT Lucca, Italy, 2012 and 2014), Model Checking Markov Chains (Universidad Nacional Rio Cuarto, Argentina, 2011 and 2015), Principles of Model Checking (Chinese Academy of Sciences, 2010, IPA Research School, 2009, Nanjing University and Tsinghua University, China, 2008), Analysis of Probabilistic Systems, (University of Firenze, Italy, 2006), Specification and Validation of Stochastic Systems, University of Birmingham, UK, 2000), Model-Checking Real-Time Systems (University of Pisa, Italy, 1997),

M.Sc. courses: Model Checking, Advanced Model Checking, Modeling and Verification of Probabilistic Systems, Concurrency Theory, Theoretical Foundations of the UML, Communication Protocol Design, Automated Validation of Parallel Systems, System Validation, Tool Architecture.

B.Sc. courses: Algorithms and Data Structures ⁵, Computability and Complexity Theory, Formal Languages and Automata Theory.

Tutoring: Compiler Construction, Design of Distributed Systems, Formal Specification Techniques, Algorithms and Data Structures, Functional Programming, Automata and Language Theory, Software Engineering Project, Formal Methods for Software Engineering.

Master and Bachelortheses

I supervised about 40–50 Master- and Bachelortheses. Master student Sebastian Junges—supervised by me and M. Stoelinga—received the price for the best Master Thesis in Computer Science 2014/15 in Germany. His work, entitled *Simplifying Fault Trees by Graph Rewriting*, was selected by the Fakultätentag Informatik. He received the price of 2,500 Euro at the 45th Annual Meeting of the German Informatics Society (Gesellschaft für Informatik e.V. GI).

⁵Recipient of the “Lehrpreis Informatik RWTH Aachen”, 2010.

Membership in Examination Committees

Internal Ph.D. Examiner: J. Romijn (1999), T.C. Ruys (2001), F.J. Sluiman (2002), S. Strubbe (2005), L. Cloth (2007), M. Englert (2008), L. Kaiszer (2008), H. Karstenberg (2008), G. Quiros (2010), C. Li (2010), E. Zambon (2013), T. Ngo Minh (2014), A. Kolesnichenko (2014), X. Zhang (2015), Y. Chen (2015), T. van Dijk (2016).

External Ph.D. Examiner: G. Clarke (Edinburgh, 1999), A.G. Engels (Eindhoven, 2001), M. Bravetti (Bologna, 2001), H.C. Bohnenkamp (RWTH Aachen, 2002), M.I. Stoelinga (Nijmegen, 2002), J. Bengtsson (Uppsala, 2002), J.I. den Hartog (VU Amsterdam, 2002), S. Andova (Eindhoven, 2002), F. Bartels (VU Amsterdam, 2004), J. Meyer-Kayser (Erlangen, 2004), S. Abbes (IRISA Rennes, 2004), S. Cattani (Birmingham, 2005), M. Hendriks (Nijmegen, 2005), L. Cheung (Nijmegen, 2006), A. Mooij (Eindhoven, 2006), S. Johr (Saarland, 2007), J. Markovski (Eindhoven, 2008), M. Größer (TU Dresden, 2008), R. Mak (Eindhoven, 2008), F. Dankar (Ottawa, 2008), F. Horn (Paris 7, 2008), T. Chen (VU Amsterdam, 2009), M. Smith (Edinburgh, 2010), N. Coste (Verimag Grenoble, 2010), B. Delahaye (INRIA Rennes, 2010), J. Berendsen (Nijmegen, 2010), M. Andres (Nijmegen, 2011), A. Classen (Namur, 2011), B. Srivathsan (Bordeaux, 2012), L. Song (IT Copenhagen, 2012), E. Amparore (Torino, 2013), J. Krétinsky (TU Munich, 2013), N. Müllner (Oldenburg, 2014), M. Randour (Mons, 2014), J. Krétinsky (Brno, 2014), R. Kindermann (Aalto University, 2014), M. Shirmohammadi (VU Brussels, 2014), D. Gebler (VU Amsterdam, 2015), M. Swaminathan (Oldenburg, 2015), P. Fournier (Rennes, 2015), Y. Li (Eindhoven, 2016).

External Habilitation Committees: P. Bouyer (ENS Cachan, 2008), R. Wimmer (University of Freiburg, 2017).

University Committees

- Student member of the Faculty Board of Computer Science, U. Twente, 1986–1987.
- Staff representative in the Faculty Board of Computer Science, U. Twente, 1993–1995.
- Head of Formal Methods and Tools Group, replacing prof.dr. H. Brinksma due to his sabbatical leave, January 2000–August 2000.
- Chairman Examination Board of Telematics at Twente, 2000–2005.
- Member of the Committee on Restructuring the CS Curriculum, 2000.
- Editor of CS Research Evaluation 1996–2001 for the Faculty of Computer Science, 2002.
- Chair Management Team of Formal Methods and Tools Group, 2002–2005.
- Chair Examination Board Computer Science at RWTH Aachen, 2008–now.
- Deputy Chair of the Graduiertenkolleg Algorithmic Synthesis of Discrete Reactive Systems, 2011–now.
- Member of more than ten Selection Committees of Junior, Associate and Full Professorships, 2005–now.
- Chair of Selection Committee Junior-Professor on Theory of Hybrid Systems, 2007.

- Chair of Selection Committee of Full Professor on Parallel Programming, 2009.
- Chair of Selection Committee of Full Professor on Logics and Automata Theory, 2011.
- Chair of Evaluation Committee of Junior-Professor on Theory of Hybrid Systems, 2011.
- Member Selection Committee of Professorship at Free University of Brussels, Belgium, 2012.
- Member Assessment Committee of Associate Professor DTU Lyngby, Denmark, 2012.
- Member Scientific Council of the Doctorate School on Information Engineering, University of Trieste, Italy, 2008–2010.
- Head of Computer Science Department, RWTH Aachen, April 2012–2015.
- Deputy Head of Computer Science Department, RWTH Aachen, since October 2015.
- Treasurer of Computer Science Department, RWTH Aachen, since 2015.
- Member Appointment Committee Max Planck Gesellschaft, 2015.

Professional activities

Membership in Steering Committees

1. Workshop on PROBABILISTIC METHODS IN VERIFICATION (PROBMIV), 1998–2003.
2. Conference on QUANTITATIVE EVALUATION OF SYSTEMS (QEST), 2004–2007 (Founding member), 2009–now. Chair of the QEST steering committee since September 2012.
3. EUROPEAN JOINT CONFERENCE ON THEORY AND PRACTICE OF SOFTWARE (ETAPS), 2001–2003 and 2005–now. Deputy Chair of the ETAPS steering committee 2011–2013. Elected Chair of the ETAPS SC from April 2013 on.
4. Conference on FORMAL MODELING AND ANALYSIS OF TIMED SYSTEMS (FORMATS), 2009–now.
5. Conference on TOOLS AND ALGORITHMS FOR THE CONSTRUCTION AND ANALYSIS OF SYSTEMS (TACAS), 2011–2013.
6. Conference on CONCURRENCY THEORY (CONCUR), 2013–now.

Membership in Program Committees

ARTS (1997 and 1999 [**chair**]), FMICS (1999 and 2007), PROBMIV (1999 and 2001), DSVV (2000 and 2001), Performance Tools (2000, 2002, and 2003), M4M (2001 and 2005), TACAS (2002 [**co-chair**], 2003, 2010, 2013, 2014), FORMATS (2003, 2005, 2008 and 2014), CONCUR (2004, 2010 and 2011 [**co-chair**], 2015), QEST (2004 [**co-chair**]–2007, 2010, 2011 [**general chair**], 2012), ISoLA (2004, 2006, 2010 and 2012), MMB (2006, 2010, 2012, 2014, 2016), PSI (2006, 2009, 2011, 2014, 2015, 2017), NSMC (2006, 2010), QAPL (2006 and 2013), VERIFY (2006, 2007 and 2010), MEMICS (2006), FSTTCS (2006), IFIP PERFORMANCE (2007), DSN (2007 and 2008), SAVCBS (2007), SOFSEM (2009), RP (2010), MOVEP (2010–2016),

FASE (2011), ICALP (2011 and 2016), CAV (2011, 2013, 2015, 2016), FOSSACS (2012), FMICS (2012), CIAA (2012), ATVA (2012–2015), LATA (2013, 2014, 2016, 2017), FSEN (2013–2017), FORTE/FMOODS (2013), IEEE INDIN (2013), SMC (2013), Petri Nets (2014–2016), SEFM (2015), Frontiers of Formal Methods (2015), HSCC (2016), FM (2016), CSL (2017), SafeComp (2017).

Other Review Activities

Panel Computer and Information Science, ERC (2015); Royal Academy of Science (UK); Singapore Ministry of Education; Review panel INRIA Research Centre (2012); Reviewer of Zentralblatt MATH (since 2011); Book referee Cambridge University Press and MIT Press; Advanced and Starting Research Grants, European Research Council (as member of the ERC Review College, 2010–2013); Alexander von Humboldt Stiftung (Germany); Carl-Zeiss Stiftung (Germany); Wittgenstein Award (Austria); Roger Needham Award (BSC, UK); Heinz-Maier Leibniz Preis (DFG, Germany); Icelandic Centre for Research; Luxembourg Science Foundation; Czech Science Foundation; Portuguese Foundation for Science and Technology; Distinguished Postdoctoral Grants (VENI Program, The Netherlands, 2007–2009); German-Israel Foundation for Scientific Research and Development; Dutch Research Council (NWO); German Research Council (DFG); Handbook of Automata Models; Handbook of Process Algebra; Israel Science Foundation; INRIA, France; Vienna Science and Technology Fund; UK Engineering and Physical Sciences Research Council (as member of the EPSRC Review College, 2006–2010); Agence National de la Recherche (ANR), France.

Membership Professional Associations

ACM (Association for Computing Machinery, senior member), ACM Special Interest Group on Logic and Computation (SIGLOG), EATCS (European Association for Theoretical Computer Science), NVTI (Dutch Association for Theoretical Computer Science), GI (German Association for Computer Science), IEEE Computer Society, EASST (European Association of Software Science and Technology), EAPLS (European Association for Programming Languages and Systems).

Journal Editorships

- Member editorial board *PeerJ*, 2015–now.
- Member editorial board *The Scientific World Journal*, Hindawi Publishers, 2012–2013.
- Member editorial board *Journal on Software Tools for Technology Transfer (STTT)*, Springer Verlag, 2011–now.
- Member editorial board *Journal of Software*, Academic Publisher, 2006–2010.
- Guest editor (with B. König) of a special issue of *Logical Methods in Computer Science* on the CONCUR 2011 conference, 2013. doi: 10.2168/lmcs-concur:2011.
- Guest editor (with G. Franceschinis and M. Woodside) of a special issue of *IEEE Transactions on Software Engineering* on the QEST 2004 conference, volume **32**(8), 2006.

- Guest editor (with P. Buchholz and M. Verhoef) of a special issue of *Journal of Software Tools for Technology Transfer* (Springer) on the ISOLA 2004 conference, volume **8**(6), 2006.
- Guest editor (with B.R. Haverkort) of a special issue of *ACM SIGMETRICS Performance Evaluation Review*, volume **32**(4), 2005.
- Guest editor (with P. Stevens) of a special issue of *Journal of Software Tools and Technology Transfer* (Springer) on the TACAS 2002 Conference, volume **6**(2), 2004.
- Guest editor (with H. Hermanns) of a special issue of *Journal of Logic and Algebraic Programming* (Elsevier) on Model Checking, volume **52–53**, issue C, 2002.
- Guest editor of a special issue of *Theoretical Computer Science* (Elsevier) on Real-Time and Probabilistic Systems (ARTS'99), volume **282**, 2002.

Event Organizer

- SPRING SCHOOL ON FOUNDATIONS OF PROBABILISTIC PROGRAMMING. Minho, Portugal, May 2017. (jointly organized with A. Silva and G. Barthe).
- FIRST ETAPS WORKSHOP ON LEARNING IN VERIFICATION (LiVE). Uppsala, Sweden, April 2017. (jointly organized with J. Kretinsky).
- MYSURU WORKSHOP ON TRENDS AND CHALLENGES IN QUANTITATIVE VERIFICATION. Mysore, India, February 2016. (jointly organized with S. Akshay, B. Srivathsan, and I. Walukiewicz).
- DAGSTUHL SEMINAR ON PROBABILISTIC PROGRAMMING. Schloß Dagstuhl, Germany, April 2015. (jointly organized with G. Barthe, A. Gordon, and A. McIver).
- WORKSHOP ON NEW AGE CONCURRENCY. Aachen, Germany, March 2014. (jointly organized with M. Müller-Olm, R. Meyer, and H. Wehrheim,).
- DAGSTUHL SEMINAR ON CORRECT AND EFFICIENT ACCELERATOR PROGRAMMING. Schloß Dagstuhl, Germany, April 2013. (jointly organized with A. Cohen, A. Donaldson, and M. Huisman).
- 3RD INTERNATIONAL WORKSHOP ON HYBRID AUTONOMOUS SYSTEMS (HAS). Tallinn, Estonia, March 2012. (jointly organized with M. Bujorianu and E. Frazzoli).
- 6TH INTERNATIONAL SYMPOSIUM ON TRUSTWORTHY GLOBAL COMPUTING (TGC). Aachen, Germany, September 2011.
- 22ND INTERNATIONAL CONFERENCE ON CONCURRENCY THEORY (CONCUR). Aachen, Germany, September 2011. (jointly organized and chaired with B. König).
- 8TH INTERNATIONAL CONFERENCE ON QUANTITATIVE EVALUATION OF SYSTEMS (QEST). Aachen, Germany, September 2011.
- PH.D. SCHOOL ON QUANTITATIVE MODEL CHECKING (QMC). Copenhagen, Denmark, March 2010. (jointly organized with K.G. Larsen).

- FIRST YOUNG RESEARCHERS WORKSHOP AT CONCUR (YR-CONCUR). Bologna, Italy, September 2009.
- ETAPS WORKSHOP ON CORRECTNESS, MODELING AND PERFORMANCE OF AEROSPACE SYSTEMS (COMPASS). York, UK, March 2009. (jointly organized with A. Cimatti).
- WORKSHOP ON LOGICS AND AUTOMATA: HISTORY AND PERSPECTIVES. In honour of the 60th birthday of Wolfgang Thomas. RWTH Aachen, Germany, December 2007.
- SYMPOSIUM TWO DECADES OF PROBABILISTIC VERIFICATION. Lorentz Center, Leiden, The Netherlands, November 2007. (jointly organized with F. Vaandrager, C. Baier, B. Haverkort, H. Hermanns and M. Siegle).
- DAGSTUHL SEMINAR ON QUANTITATIVE ASPECTS OF EMBEDDED SYSTEMS. Schloß Dagstuhl, Germany, March 2007. (jointly organized with L. Thiele and B. Haverkort).
- WORKSHOP ON PROCESS ALGEBRA: THE FIRST 25 YEARS AND BEYOND. Bertinoro, Italy, August 2005. (jointly organized with L. Aceto, A. Gordon and W. Fokkink).
- 1ST INT. CONFERENCE ON QUANTITATIVE EVALUATION OF SYSTEMS (QEST). Enschede, The Netherlands, September 2004. (jointly organized with B. Haverkort).
- GI/DAGSTUHL SEMINAR ON MODEL-BASED TESTING OF REACTIVE SYSTEMS. Schloß Dagstuhl, Germany, January 2004. (jointly organized with M. Broy, B. Jonsson, M. Leucker, and A. Pretschner).
- TOOLS AND ALGORITHMS FOR THE ANALYSIS AND CONSTRUCTION OF SYSTEMS (TACAS). Grenoble, France, April 2002. (jointly chaired with P. Stevens).
- GI/DAGSTUHL SEMINAR ON VALIDATION OF STOCHASTIC SYSTEMS. Schloß Dagstuhl, Germany, December 2002. (jointly organized with C. Baier, B. Haverkort, H. Hermanns, and M. Siegle).
- Symposium on the occasion of 20-YEARS LUSTRUM OF THE COMPUTER SCIENCE STUDIES of the Universities of Twente, Eindhoven and Delft, October 2001.
- DUTCH MODEL CHECKING DAY, Enschede, The Netherlands, January 2001. (jointly organized with E. Brinksma).
- EURO/EEF-SUMMER SCHOOL ON FORMAL METHODS AND PERFORMANCE ANALYSIS (FMPA). Berg en Dal, The Netherlands, July 2000. (jointly organized with E. Brinksma and H. Hermanns).
- 5TH INT. AMAST WORKSHOP ON REAL-TIME AND PROBABILISTIC SYSTEMS (ARTS). Bamberg, Germany, May 1999.

Membership of Boards

- Chairman of the ETAPS e.V. Association, since 2015.

- Project-leader of the NWO-DFG bilateral project Validation of Stochastic Systems (VOSS), 2001–2007.
- Board member of the Dutch Society for Theoretical Computer Science (NVTI), 2005–2013.
- Member NWO evaluation committee VENI proposals, 2007–2009.
- Project-leader of ESA Project Correctness Modelling and Performance of Aerospace Systems (COMPASS), 2008–2010.
- Member EPSRC Review College, 2006–2010.
- Member Board of Doctorate School on Information Engineering, University of Trieste, Italy, 2007–now.
- Member Scientific Board Research Centre FOCUS at the University of Namur, Belgium, 2010–now.
- Vice-chairman of the Research Training Group on Algorithmic Synthesis of Discrete- and Continuous Reactive Systems (ALGOSYN), 2011–2015.

Research grants

Research Funding

1. DFG Project on *Automated Analysis of Concurrent Pointer Programs*, (Together with T. Noll, RWTH) 2015–2017, 185 KEuro.
2. BMBF KMU-Verbundprojekt, *Highly Robust Wireless Communication for Industrial Applications*, 2014–2017, about 125 Keuro.
3. Distinguished Professorship, DFG Excellence Programme, *Automating Probabilistic Program Analysis*, 2013–2017, about 670 Keuro.
4. Theodore von Kármán Fellowship, DFG Excellence Programme, together with a DFG Collaboration Initiator Grant, 2013, 18 Keuro.
5. Siemens/RWTH Aachen Project on *Verifying PLC Programs*, 2013–2017, 380 KEuro.
6. European Space Agency (ESA), *Hardware Software Development for Launchers* (HAS-DEL), 2012–2014, 100 KEuro.
7. FP7 Programme European Commission, *Distributed MILS for Dependable Information and Communication Infrastructures*, (S. Hansen, The Open Group, PI), 2012–2015, about 320 Keuro.
8. FP7 Programme European Commission, *Self Energy-Supporting Autonomous Computation* (SENSATION), (K.G. Larsen, Aalborg University, PI), 2012–2015, about 300 KEuro.

9. Dutch Science and Technology Foundation (STW), *smARt RAilroad maintenance eNGi-nEERing with stochastic model checking (ARRANGEER)* (together with M. Stoelinga, U. Twente), 2012–2016, 500 Keuro.
10. ATL Microsoft/RWTH Aachen Project on *Optimizing Energy Consumption in an Automotive Environment*, 2011–2012, 100 KEuro.
11. EU Marie Curie Programme International Research Staff Exchange Scheme (IRSES), *Mobility between Europe and Argentina applying Logics to Systems (MEALS)*, (H. Hermanns, Saarland University, PI), 2012–2016, 50 Keuro.
12. FP7 Programme European Commission, *Correct and Efficient Accelerator Programming (CARP)*, (A. Donaldson, Imperial College, PI) 2011–2014, 280 KEuro.
13. German Research Council (DFG), *Counterexample Generation for Stochastic Models by Bounded Model Checking (CeBUG)*, (together with B. Becker, Freiburg and E. Abrahám, RWTH), 2010–2013, 200 KEuro.
14. Dutch Research Council (NWO), *Efficient Multi-Core Model Checking (E(MC)²)*, (D. Boshnacki, TU Eindhoven, PI) 2009–2013, 100 KEuro.
15. FP7 Programme European Commission, *Modeling and Verification of Stochastic Hybrid Systems (MOVES)*, (J. Lygeros, ETH Zurich, PI) 2010–2013, 310 KEuro.
16. NPI Programme European Space Agency (ESA), *Extending and Improving Formal Methods for System/Software Co-Engineering*, 2010–2012, 90 KEuro.
17. Dutch Research Council (NWO), *Symbolic Reduction of Probabilistic Models (SYRUP)*, 2009–2013, 190 KEuro.
18. Bilateral DFG-NWO research programme, *Rigorous Dependability Analysis using Stochastic Model Checking Techniques (ROCKS)*, 2009–2012, 110 KEuro.
19. Excellence Initiative German Research Council (DFG), *Junior Professorship on Theory of Hybrid Systems*, 2008–2013, 980 KEuro.
20. European Space Agency (ESA), *Correctness, Modeling and Performance of Aerospace Systems (COMPASS)*, 2008–2011, 560 KEuro.
21. FP7 Programme European Commission, *Quantitative Aspects in Model-Driven Embedded System Design (QUASIMODO)*, (K.G. Larsen, Aalborg, DK, PI), 2008–2011, 220 KEuro.
22. Excellence Cluster Programme of the German Research Council (DFG), *Ultra High-Speed and Mobile Communication (UMIC)*, (G. Ascheid, RWTH, PI), 2005–2010, 200 KEuro.
23. Research Training Group funded by the German Research Council (DFG), *Algorithmic Synthesis of Reactive Systems (ALGOSYN)*, (W. Thomas, RWTH, PI), 2005–now, 600 KEuro.
24. Dutch Research Council (NWO), *Verifying Quantitative Properties of Embedded Systems (QUPES)*, 2005–2009, 368 KEuro.

25. Bilateral DFG-NWO research programme, *Validation of Stochastic Systems 2* (VOSS 2), 2005–2008, 100 KEuro.
26. Dutch Research Council (NWO), *Model Checking of Infinite-State Markov Chains* (MC = MC), 2003–2007, 343 KEuro. (joint project with B. Haverkort).
27. Bilateral DFG-NWO research programme, *Validation of Stochastic Systems* (VOSS), 2001–2004, 75 KEuro.
28. Dutch Research Council (NWO), *Specification-based Performability Checking* (SPACE), 2000–2003, 125 KEuro.
29. German Research Council (DFG), *Automated Verification of Quality-of-Service Aspects of Distributed Systems*, (U. Herzog, Erlangen, PI), 1998–2001, 175 KEuro.
30. Deutsche Akademische Austausch Dienst (DAAD), *Stochastic Modelling and Verification* (U. Herzog, Erlangen, PI), 1998–2001, 15 KEuro.
31. CNR-CNUCE (Italy), *Event Structures Quantitative, Simulazione Discreta e Modelli per la Performance*, (D. Latella, CNUCE, PI), 1997–1999, 15 KEuro.
32. CNR-CNUCE (Italy), *EStensione Probabilistiche e Temporalis dell'algebra di processi LOTOS bassate su strutture di eventi, per la specifica e analisi quantitative di sistemi distribuiti*, (D. Latella, CNUCE, PI), 1994–1996, 15 KEuro.

For joint projects, the above indicated funding refers to **my** part of the funding, and do not indicate the total budget of the project. The total funding acquired is about **7.8 million** Euro.

Publications

Katoen published more than **150** reviewed conference papers and more than **60** journal papers. According to Google Scholar (September 2016), his publications received **13,150** citations in total. His Hirsch-index is **50**. A researcher with Hirsch-index n has published n papers each of which has been cited by others at least n times. Microsoft Academic ranks me at position 1,500 in the list of most cited authors in Computer Science of all time. Joost-Pieter Katoen co-authored with Christel Baier the textbook “Principles of Model Checking” (2008, MIT Press). This book is the one-but-most cited work in model checking (with about **2900** citations), and is the best-seller in the field according to Amazon sales ranks.

Ten major publications are:

1. B. L. KAMINSKI, J.-P. KATOEN, C. MATHEJA, AND F. OLMEDO. *Weakest Precondition Reasoning for Expected Run-Times of Probabilistic Programs*. In: **European Symp. of Programming**, volume 9632 of LNCS, pages 364–389, Springer, 2016 (EATCS Best Theory Paper Award.)
2. J.-P. KATOEN, L. SONG, AND L. ZHANG. *Probably Safe or Live*. In: **Computer Science Logic and Logic in Computer Science (CSL-LICS)**, pages 55:1–55:10, ACM, 2014.

3. M. BOZZANO, A. CIMATTI, J.-P. KATOEN, V. Y. NGUYEN, T. NOLL, AND M. ROVERI. *Safety, Dependability, and Performance Analysis of Extended AADL Models*. In: **The Computer J.**, 54(4): 754–775, 2011.
4. T. CHEN, T. HAN, J.-P. KATOEN, AND A. MEREACRE. *Model Checking of Continuous-Time Markov Chains against Timed Automata Specifications*. In: **Logical Methods in Computer Science**, 7(1), 2011.
5. B. BOLLIG, J.-P. KATOEN, C. KERN, AND M. LEUCKER. *Learning Communicating Automata from MSCs*. In: **IEEE Transactions on Software Engineering**, 36(3): 390–408, 2010.
6. C. BAIER AND J.-P. KATOEN. *Principles of Model Checking*. The MIT Press, 2008.
7. P. R. D'ARGENIO, AND J.-P. KATOEN. *A Theory of Stochastic Systems. Part I: Stochastic Automata*. In: **Information and Computation**, 203(1): 1–38, 2005.
8. D. DISTEFANO, J.-P. KATOEN, AND A. RENSINK. *Who is Pointing When to Whom? – On the Automated Verification of Linked List Structures*. In: **Foundations of Software Technology and Theoretical Computer Science (FSTTCS)**, volume 3328 of LNCS, pages 250–262, Springer-Verlag, 2004.
9. C. BAIER, B. R. HAVERKORT, H. HERMANNNS, AND J.-P. KATOEN. *Model-Checking Algorithms for Continuous-Time Markov chains*. In: **IEEE Transactions on Software Engineering**, 29(6): 524–541, 2003.
10. A. NYMEYER AND J.-P. KATOEN. *Code Generation based on Formal Bottom-up Rewrite Systems Theory and Heuristic Search*. In: **Acta Informatica**, 34(4): 597–635, 1997.

A full list of publications is available at:

<http://www-i2.informatik.rwth-aachen.de/~katoen/pubs.php?al=no>